

An Investigation of Beam Spreading Techniques  
for  
Semiflush-Prismatic Type Airport-Marker Lights

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1. INTRODUCTION

The results of an investigation of several methods of spreading the vertical extent of the beam from a semiflush-prismatic type BB airport-marker light is given in NBS Report 8169. The type BB light has a vertical projection of 1/2 inch above the runway surface. This report gives the results of tests made on a type B light, which has a 1-inch projection, utilizing one of the methods described in NBS Report 8169, namely, the use of an auxiliary condensing lens.

2. MATERIAL USED

The test was made using a type B2 light designed to have a beam elevation of  $4.5^\circ$ . The lamp used was a 20A/PAR56/3 lamp with a stippled cover and a CC-6 filament. It is rated at 499 watts and was operated at its rated current, 20 amperes. The lens used was a split plano-convex type, originally 2-1/2 inches by 4-1/4 inches, with a focal length of 2.58 inches. This lens was sawed in half on its longer axis. Only one half of the prism was used. The lens was positioned as shown in figure 1.

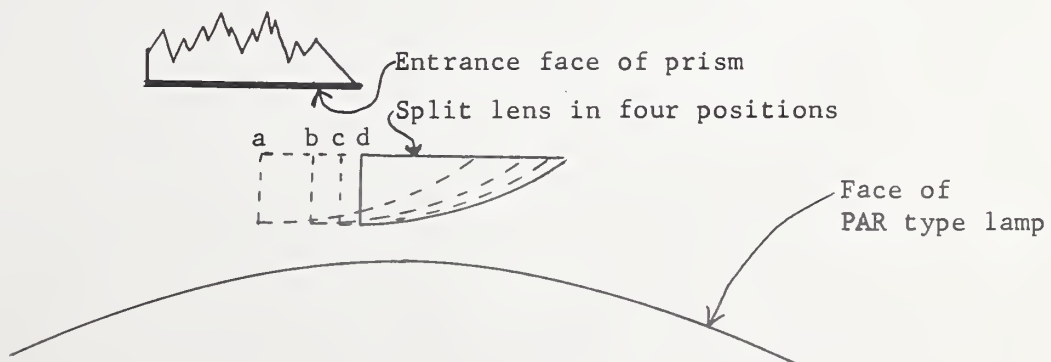


Figure 1. Relative position of light unit components showing position of split condensing lens.



### 3. PROCEDURE

The photometric equipment and methods used are described in Sections 2.1a and 2.3a of NBS Technical Note 198 (NBS Report 7410). The photometric distance was 30 meters.

### 4. RESULTS

Four vertical intensity distributions resulting from different placement of the lens (as shown in figure 1) and one without the lens are shown in figure 2.

### 5. CONCLUSION

The results given in this report are intended only to demonstrate the effectiveness of an auxiliary lens in modifying the intensity distribution of the light and should not be considered as showing the optimum choice of parameters.

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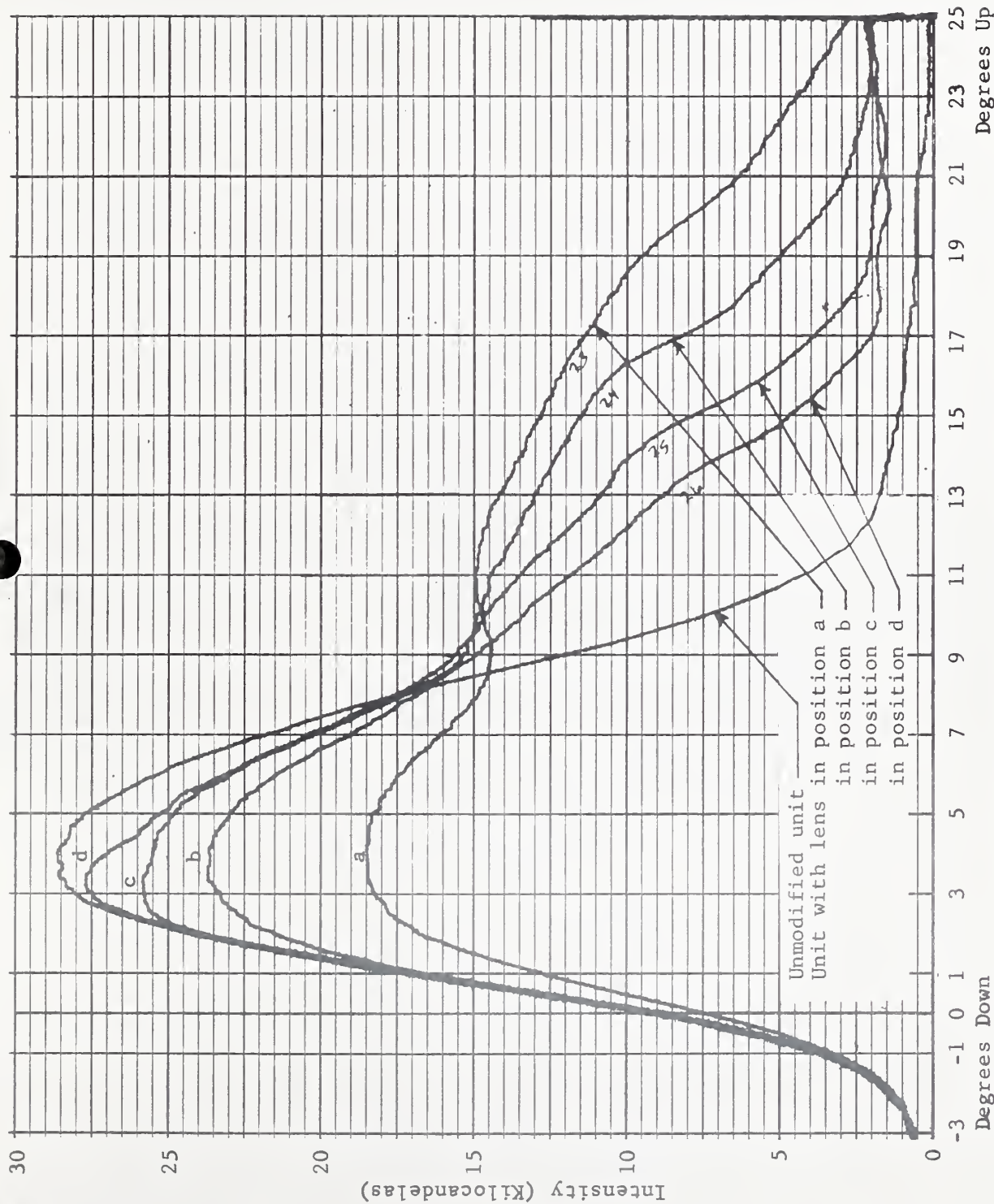


Figure 2. Vertical intensity distribution through beam axis of a type B Prismatic Approach and Runway Light with a .499-watt, type 20A/PAR56/3 lamp operated at 20 amperes.  
NBS Report 8169 Supplementary

